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NOTES ON PELICAN ISLAND.

BY GEO. NELSON.

Plates IV-VII.

FOR a great many years the Brown Pelicans (*Pelecanus occidentalis*) of the east coast of Florida have occupied as a breeding site, a small island in the Indian River near the town of Sebastian. This island, popularly known as Pelican Island, is not over three acres in area, and only at the sandy ridge at the eastern end is it but little over two feet above the normal water level. Many years ago it was well covered with mangrove trees, in which the birds nested, but now only a few bleached stumps remain. Formerly the nesting season started early in the winter, and was terminated by the following summer, but in recent years, each successive season began a little earlier, and continued somewhat later than the previous one until the years 1908 to 1910 when the island was occupied as a breeding site for twenty-four consecutive months. During the last week in October, 1908, the birds arrived at the island, and the general body of them started building at once. Additional though smaller colonies were continuously arriving until the summer of 1909, and some of the young of these later colonies were still too young to leave when the main body of old birds arrived in October for the new nesting season. The 1909 season continued in much the same manner as the previous one until the third week in October, 1910, when Florida was visited

by a violent hurricane; the river rose and completely submerged the island, driving the young to the more elevated islands near by. The reason for this high water may be attributed to the shape and character of the Indian River. For many miles north of Pelican Island the Indian River is a mile or more in width, while a few miles south the width is but a few hundred yards. When the wind is strong from the north for a continued period the water is blown down the shallow river, and, as so great a body of water cannot pass through the "narrows" quickly enough, the river rises for miles above. For more than three weeks after this hurricane Pelican Island was flooded, and it was during this period that the Pelicans arrived for a new nesting season. Their old home having disappeared, they finally began building on one of the larger islands situated about 400 yards southeast of the old island, while about a dozen nests were built on two small islets near by. They were evidently very well satisfied with their new sites, for, although the lowering water soon restored their former island to its normal size, not a single nest was built on it during the entire season.

The new island is peculiarly adapted to the welfare of the Pelicans. It is much larger than the old island, having an area of fully twenty acres, about one half of which is densely wooded with large black mangroves. There are a few small patches of red mangroves near the water. The wooded section is mainly located on the northern and western parts, thereby forming very effectual protection to the majority of birds from the cold "northerners." The shape of the island can, with a little imagination, be likened to a pelican at rest, with its head lowered to its shoulders.

Although Brown Pelicans originally preferred arboreal nesting sites, and conditions on the new island seemed favorable for such sites, less than one sixth of the five thousand nests were placed in the trees. This small percentage of tree nests leads us to infer that ground sites are now preferable to arboreal ones. It is so many years since the majority of the birds could have nested in trees, that there can be very few of the present generation that have nested, or were raised in trees; and it is quite probable that those who did so the past season had some previous experience.

On the new island I had many opportunities to contrast the advantages of the terrestrial with the disadvantages of the arboreal nesting sites.

In the arboreal nest, the young pelicans, as soon as they are able to walk with any degree of security, begin to crawl out on the branches, and in many cases are unable to return to the nest to be fed. When the parent birds return to feed their young they land at the nest and pause awhile, then, if their offspring are unable to return, the old birds finally answer their pleadings by flying out and feeding them, but not without considerable difficulty. The outer branches of the mangroves, being very slender and weak, form very insecure perches for such heavy and clumsy birds, and every feeding operation in such places becomes a ludicrous balancing act. The semi-crazed actions of the young pelicans after being fed are undoubtedly the cause of considerable mortality among the young in the taller trees. During these spells they are in great danger of falling to the ground, or they remain in awkward positions among the lower branches. The greatest number of dead young I saw on the island were hanging in these positions, or were on the ground beneath the trees. The cold periods which are becoming more numerous and severe in this section of Florida would be the cause of some mortality among the half grown young, perched on the branches in exposed positions. The ground nesting birds experience none of these difficulties. Here the parent birds can make an easy and graceful landing at any time, and feed their young with greater facility. The young can wander about, thereby getting strength and exercise not possible with tree-nesting birds. No mishap can here befall them while "performing" before and after being fed. They can move to protected places during cold windy weather. The percentage of dead young in the ground nesting localities was not nearly so large as it was among the tree nesters.

The river is very shallow near the new island, and a comfortable landing can be made only on the eastern point. It is on this eastern point where the warden usually lands visitors. Over three hundred persons were landed here during the past season. The birds in the vicinity of this point have been so accustomed to seeing people, that they will allow of very close approach. That all of the birds are not as easily approached as those of the eastern end, became very evident when, on one occasion, the warden and I, wishing to explore the densely wooded interior of the island,

landed on the northwestern end. None of the young here that were able to fly would allow of close approach but would usually disgorge three or four fish and thus lightened take to flight. At times we could hear the spattering noise of falling fish before we got to the trees the birds were leaving. All the fish examined proved to be Menhaden (*Brevoortia tyrannus*) about eight inches in length. There is a large treeless space of perhaps two acres, in the centre of the island, so thickly overgrown with "sea parsley" (*Sesuvium*) that it was with some difficulty we made our way over it. Overhead the birds were flying with great speed in large circles. This is the alarm flight of the Pelicans, and can be seen for more than a mile. It is one of the warden's most reliable signs that the pelicans have unwelcome visitors. There were isolated nests in some of the trees in the interior, most of them unoccupied.

During this trip we flushed a Clapper Rail, a Yellow-crowned Night Heron, and a Yellow-throat (*Geothlypis*). These, with a pair of Great Blue Herons, the Pelicans, and the ever present Buzzards were the only birds we saw in the interior. Almost daily, during March, from fifty to two hundred Florida Cormorants were seen around the island, also large numbers of Lesser Scaup Ducks, a few Little Blue and Louisiana Herons, Fish Hawks and Kingfishers. Should the Pelicans continue in the future to breed on this island, some of the Herons, Egrets and White Ibises will probably colonize with them, as they did many years ago, when there were trees on the old island.

To the nature photographer Pelican Island is peculiarly interesting, for almost any day during the first five months of the year, one can find all possible stages of Pelican life, from nest building to the full grown young bird. The use of a "blind," or place of concealment is neither necessary nor advisable on Pelican Island. In erecting a blind, one of course has to flush the sitting birds, which leave with a great rush, and in many cases, eggs and small young are thrown out of their nests. Then, if the sun is shining, its burning rays would shortly bring about fatal results, as the naked young are naturally seldom wholly exposed to the sun for only a very brief period. I had no trouble in walking very slowly, though with many pauses, to within twenty feet of a colony of birds with newly hatched young. Here I slowly set up



NEW PELICAN ISLAND, FLORIDA, 1911.